Electrical Hazards

The danger of injury through electrical shock is present whenever electrical power is used. All electrical equipment should be adequately insulated, grounded, or isolated to prevent bodily contact with any source of dangerous potentials. Under certain conditions people can be injured severely even from relatively low voltages coupled with high current flows.

The primary effects of electric shock are due to current actually flowing through the body. electrical burns occur when the body, or a part of it, completes a circuit connecting the power source with the ground. Although the resistance of dry, unbroken skin to electric current is relatively high, the amount of current necessary to kill a person is small. Therefore, it is easy to exceed lethal levels of current flow, especially if the skin is broken, wet, or damp with sweat.

If your equipment runs erratically or if you feel an electrical "tingle" when you touch it, stop using the tool, tag it, and have it repaired. whenever the risk of electrocution is high, wear the right protective clothing-insulated gloves, eye protection, boots and head gear. If you are not sure what to wear, ask your supervisor of your wing ground safety office.

Electrical Safety Tips

- Never modify a plug by bending or removing the prongs. When plug prongs are bent, loose or missing, replace the device.
- Cord adapters used to defeat the ground connection (i.e. 3-prong to 2-prong adapters) should not be used.
- All receptacles and any electrical conductors must be sufficiently grounded, and if uncertain whether or not this is true, call wing safety for assistance.
- Receptacles should be mounted firmly in their enclosures and should not move when the plug is inserted. Loose receptacles can cause short circuits.
- If you discover loose receptacles or other faulty electrical equipment, it should be removed from service or tagged out until a qualified electrician can make repairs.
- Damaged electrical enclosures such as switches receptacles and junction boxes should be reported immediately to your supervisor/wing safety.
- extension cords should be used only when necessary and only on a temporary basis. Extension cords should not be used in place of permanent of fixed wiring.
- Make sure all extension cords are the right size or rating for the tool you're using. EXAMPLE: The diameter of the extension cord wiring used should be equal to or greater than the cord of the appliance being used.
- Keep all electrical cords away from areas where they may be pinched, such as off the floor, out of walkways, and out of doorways. where possible, move the electrical appliance closer to the outlet.
- Do not use any appliance or extension cord that exhibits signs of wear, such as frayed insulation or exposed wiring. To ensure safe operation, all electrical equipment should be visually inspected before use.
- Never staple, nail or otherwise attach extension cords to a surface.
- Never unplug an appliance by pulling on the cord, always remove by the plug.
- Keep the floor in your workplace completely dry.
- Keep all electrical equipment away from any source of water unless the appliance is rated for use around water, such as a wet-dry shop vacuum.
- Ground fault circuit interrupters (GFCI's) should be used as much as possible. In any wet, damp or moist environment, GFCI's are required.
- All electrical panels shall be unobstructed, have a minimum clearance of 36", and shall be easily accessible.
- Keep dust and lint off electrical panels, receptacles, and appliances.
- Electrical panel doors should be closed and latched when not in use.
- Separate all combustible materials away from electrical equipment.

- Attempt to limit one appliance per outlet. However, if more than one appliance is to be used for each circuit, an approved plug strip with circuit breaker should be used.
- Always turn off a tool or appliance before disconnecting it to avoid exposure to live electrical parts.
- Proper illumination shall be provided in all areas where electrical hazards are apt to be encountered and an emergency lighting system should be in place as well.
- All energized parts of electrical circuits and equipment shall be guarded against accidental contact by approved cabinets or enclosures.
- Employees who regularly work on or around energized electrical equipment shall be trained in the proper methods of cardio-pulmonary resuscitating.
- Where electrical shock hazards exist, first-line and backup protection shall be provided to prevent access to energized circuits and parts. this protection includes using lockouts, grounding hooks, barriers and rubber mats.
- In places where electrical hazards exist, there shall be conspicuous visual indications of ON and OFF conditions, the type of hazard and its exact location.
- Bench tops and bench edges in the immediate work area should be non-conductive and only a minimum of connected equipment should be on the bench tops. Rubber matting of adequate breakdown voltage should be used.
- Adequate and workable lockout- tag out procedures shall be used
- When any equipment may produce sparks or arcing during normal operation, safety glasses must be used at all times.
- Proper personal protective equipment, such as a hard hat, safety glasses, arm mats and gloves should be worn when maintaining any electrical equipment.
- When using tools near electrical hazards, all tools must have a double insulated casing to prevent contact with energized parts.
- Never work alone on a live circuit - always have an observer.
- Be acquainted with all electrical hazards that may be encountered in your work area.
- Notify your supervisor of any potential electrical hazard that may be going unnoticed.
- In addition to the recommendations for general electrical safety, there are more stringent rules that apply to high voltage operations.
- High voltage pertains to electrical equipment that is operating at more than 600 volts in terminal to terminal operation or at more than 300 volts in voltage to ground operation. In addition, low voltage, high current AC or DC power supplies are also considered to be high voltage applications.
- All switches, circuit breakers, and other control devices that are in high voltage equipment shall be labeled as such.